

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A soft landing control system for a screeding machine for smoothing and screeding a concrete surface, said screeding machine including a screed head assembly having a grade setting device and a vibrating member, said screeding machine including a screed head support for supporting said screed head assembly, said soft landing control system comprising:
a control operable to adjust the level of said vibrating member relative to said grade setting device, said control being operable to automatically lower said vibrating member toward and into engagement with the concrete surface after said grade setting device is lowered to the desired grade level, said control being operable to automatically lower said vibrating member into engagement with the concrete surface in response to an activating event.
2. The soft landing control system of claim 1, wherein said control is operable to adjust the level of said vibrating member relative to said grade setting device via pivotal movement of said screed head assembly about a pivot axis extending generally along said screed head assembly and generally parallel to the desired grade of the concrete surface.
3. The soft landing control system of claim 2, wherein said control is operable to pivot a level sensing device relative to a frame of said screed head assembly, wherein a tilt control of said screeding machine is operable to pivot said screed head assembly in response to pivotal movement of said level sensing device to lower said vibrating member into engagement with the concrete surface.
4. The soft landing control system of claim 2, wherein said control is operable to pivot said screed head assembly about said pivot axis via extension or retraction of at least one actuator of said screed head assembly.
5. The soft landing control system of claim 1, wherein said control is operable to adjust the level of said vibrating member relative to said grade setting device via generally vertical movement of said vibrating member relative to a frame of said screed head assembly.

6. The soft landing control system of claim 1, wherein said activating event comprises at least one of actuation of a user input, detection of uncured concrete at or near said vibrating member and detection of said screed head assembly being at a predetermined height above the desired grade level.
7. The soft landing control system of claim 6, wherein said control is operable to lower said vibrating member toward and into engagement with the concrete surface after a period of time following said activating event.
8. The soft landing control system of claim 1, wherein said control is operable to lower said vibrating member toward and into engagement with the concrete surface after a period of time following said activating event.
9. The soft landing control system of claim 1, wherein said activating event comprises actuation of a user input, said control having a timing device and being operable to lower said vibrating member toward and into engagement with the concrete surface after a period of time following said activating event.
10. The soft landing control system of claim 1, wherein said activating event comprises a detection of uncured concrete at or near said vibrating member.
11. The soft landing control system of claim 10, wherein said control receives an input from a vibration sensing device operable to sense the vibration at one of the concrete surface and said vibrating member, said control lowering said vibrating member in response to said control determining that sensed said vibration is indicative of vibration at uncured and not previously screeded concrete.
12. The soft landing control system of claim 10, wherein said control receives an input from a vertically movable sensing device, wherein movement of said vertically movable sensing device is affected by the type of concrete or degree of cure of the concrete at which said sensing device is positioned, said control lowering said vibrating member in response to said input being indicative of said sensing device engaging uncured and not previously screeded concrete.

13. The soft landing control system of claim 10, wherein said control receives an input from a switch positioned in front of said grade setting device, wherein said switch communicates an input signal to said control when said switch contacts excess uncured concrete in front of said grade setting device.

14. The soft landing control system of claim 13, wherein said control includes a timing device and is operable to lower said vibrating member into engagement with the concrete surface after a period of time following said activating event.

15. The soft landing control system of claim 1, wherein said activating event comprises a detection of said screed head assembly being at a predetermined height that is indicative of said grade setting device being at a predetermined distance above the desired grade level.

16. The soft landing control system of claim 15, wherein said predetermined height is determined in response to a laser receiver attached to said screed head assembly detecting a laser reference plane.

17. The soft landing control system of claim 15, wherein said control includes a timing device and is operable to lower said vibrating member into engagement with the concrete surface after a period of time following said activating event.

18. A method of landing a vibrating member on a concrete surface, said method comprising:

- providing a screed head assembly having a grade setting device and a vibrating member;

- lowering said screed head assembly toward the concrete surface to engage said grade setting device with the concrete surface;

- moving said screed head assembly along the concrete surface; and

- automatically lowering said vibrating member relative to said grade setting device to lower said vibrating member into substantial engagement with the concrete surface after said grade setting device is engaged with the concrete surface.

19. The method of claim 18 including delaying automatically lowering said vibrating member for a period of time after said grade setting device is engaged with the concrete surface.
20. The method of claim 18 including delaying automatically lowering said vibrating member for a period of time after an activating event.
21. The method of claim 20, wherein said activating event comprises at least one of a user input, detection of uncured concrete at or near said vibrating member and detection of said screed head assembly being at a predetermined height above the desired grade level.
22. The method of claim 18 including:
positioning said screed head assembly over an area of previously screeded concrete and adjacent to an area of newly placed concrete;
lowering said screed head assembly until said grade setting device is at the desired grade and such that said vibrating member is above said area of previously screeded concrete;
wherein moving said screed head assembly along the concrete surface includes moving said screed head assembly toward and over said area of newly placed concrete; and
wherein automatically lowering said vibrating member includes automatically lowering said vibrating member when said vibrating member is moved to be generally over said area of newly placed concrete.
23. The method of claim 18, wherein automatically lowering said vibrating member comprises pivoting said screed head assembly about a pivot axis extending generally along said screed head assembly and generally parallel to the desired grade of the concrete surface.
24. The method of claim 23, wherein pivoting said screed head assembly comprises pivoting a level sensing device relative to a frame of said screed head assembly, wherein a tilt control of said screeding machine pivots said screed head assembly to lower said vibrating member in response to pivotal movement of said level sensing device.
25. The method of claim 18, wherein automatically lowering said vibrating member comprises generally vertically moving said vibrating member relative to a frame of said screed head assembly.

26. A screeding device for screeding a concrete surface having a partially cured concrete area and a newly placed concrete area, said screeding device comprising:

a support member;

a screed head assembly adjustably mounted to said support member, said screed head assembly comprising a grade setting device and a vibrating member, said screed head assembly being lowerable to move said grade setting device to a desired grade at the concrete surface at the partially cured concrete area, said screed head assembly being movable over and along the concrete surface by said support member; and

a soft landing control operable to automatically lower said vibrating member relative to said grade setting device after said grade setting device is lowered to the desired grade, said soft landing control being operable to delay lowering said vibrating member relative to said grade setting device at least until said control receives an input indicative of at least a portion of said screed head assembly being moved to a position generally over the newly placed concrete area.

27. The screeding device of claim 26, wherein said soft landing control is operable lower said vibrating member relative to said grade setting device a period of time following the time at which said control receives said input.

28. The screeding device of claim 26, wherein said soft landing control is operable to adjust the level of said vibrating member relative to said grade setting device via pivotal movement of said screed head assembly about a pivot axis extending generally along said screed head assembly and generally parallel to the desired grade of the concrete surface.

29. The screeding device of claim 26, wherein said soft landing control is operable to adjust the level of said vibrating member relative to said grade setting device via generally vertical movement of said vibrating member relative to a frame of said screed head assembly.

30. The screeding device of claim 26 including a vibration sensing device operable to sense the vibration generally at the concrete surface, said soft landing control delaying lowering said vibrating member at least until said soft landing control determines that said vibration is indicative of newly placed concrete.

31. The screeding device of claim 30, wherein said vibration sensing device engages the concrete surface when said grade setting device is engaged with the concrete surface, said vibration sensing device being operable to sense vibration in the concrete.
32. The screeding device of claim 30, wherein said vibration sensing device is attached to said vibrating member and is operable to sense vibration reaction in said vibrating member when said vibrating member is activated and partially engaged with the concrete surface.
33. The screeding device of claim 26 including a concrete contacting switch positioned in front of said grade setting device, said soft landing control receiving an input from said switch in response to said switch contacting excess uncured concrete in front of said grade setting device, said input being indicative of said switch being at the newly placed concrete area.
34. The screeding device of claim 33, wherein said soft landing control includes a timing device and is operable to delay lowering said vibrating member toward and into engagement with the concrete surface until a period of time has elapsed following said soft landing control receiving said input from said switch.
35. The screeding device of claim 26, wherein grade setting device comprises an auger rotatable to cut and establish the desired grade at the concrete surface.
36. The screeding device of claim 26, wherein said screed head assembly includes a plow at a forward end of said screed head assembly and forward of said grade setting device.
37. The screeding device of claim 26, wherein said support member comprises an extendable and retractable boom mounted to a movable base unit, said support member being retracted to move said screed head assembly over and along the surface of the newly placed concrete area to screed the newly placed concrete.
38. A screeding device for screeding a concrete surface having a partially cured concrete area and a newly placed concrete area, said screeding device comprising:
a support member;

a screed head assembly adjustably mounted to said support member, said screed head assembly comprising a grade setting device and a vibrating member, said screed head assembly being lowerable to move said grade setting device to a desired grade at the concrete surface at the partially cured concrete area, said screed head assembly being movable over and along the concrete surface by said support member; and

a soft landing control operable to automatically lower said vibrating member relative to said grade setting device after said grade setting device is lowered to the desired grade, said soft landing control being operable to delay lowering of said vibrating member relative to said grade setting device until a period of time has elapsed after an activating event.

39. The screeding device of claim 38, wherein said soft landing control is operable to adjust the level of said vibrating member relative to said grade setting device via pivotal movement of said screed head assembly about a pivot axis extending generally along said screed head assembly and generally parallel to the desired grade of the concrete surface.

40. The screeding device of claim 38, wherein said soft landing control is operable to adjust the level of said vibrating member relative to said grade setting device via generally vertical movement of said vibrating member relative to a frame of said screed head assembly.

41. The screeding device of claim 38 including a vibration sensing device operable to sense the vibration at the concrete surface, said activating event comprising an input from said vibration sensing device to said control that is indicative of said vibration sensing device being located at the newly placed concrete area.

42. The screeding device of claim 41, wherein said vibration sensing device engages the concrete surface when said grade setting device is engaged with the concrete surface, said vibration sensing device being operable to sense vibration in the concrete.

43. The screeding device of claim 41, wherein said vibration sensing device is attached to said vibrating member and is operable to sense vibration reaction in said vibrating member when said vibrating member is activated and partially engaged with the concrete surface.

44. The screeding device of claim 38 including a concrete contacting switch positioned in front of said grade setting device, said activating event comprising an input from said switch

to said soft landing control that is indicative of said switch contacting excess uncured concrete in front of said grade setting device.

45. The screeding device of claim 38, wherein said activating event comprises an input from a level detection system that is indicative of said grade setting device being a predetermined distance above the desired grade.

46. The screeding device of claim 45, wherein said level detection system comprises a laser plane reference system, said input being provided from a laser receiver attached to said screed head assembly.

47. The screeding device of claim 38 including a vertically movable sensing device, wherein movement of said vertically movable sensing device is affected by the type of concrete or degree of cure of the concrete at which said sensing device is positioned, said activating event comprising an input from said sensing device to said soft landing control that is indicative of said sensing device being located at the newly placed concrete area.

48. The screeding device of claim 38, wherein grade setting device comprises an auger rotatable to cut and establish the desired grade at the concrete surface.

49. The screeding device of claim 38, wherein said screed head assembly includes a plow at a forward end of said screed head assembly and forward of said grade setting device.

50. The screeding device of claim 38, wherein said support member comprises an extendable and retractable boom mounted to a movable base unit, said support member being retracted to move said screed head assembly over and along the surface of the newly placed concrete area to screed the newly placed concrete.

51. A screeding device for screeding a concrete surface, said screeding device comprising:

a support member;

a screed head assembly mounted to said support member, said screed head assembly comprising a grade setting device and a vibrating member, said screed head assembly being selectively movable in a screeding direction over and along the concrete surface by said

support member, said vibrating member being vibratable to screed the concrete surface as said screed head assembly is moved in said screeding direction over and along the concrete surface; and

a control operable to automatically stop vibration of said vibrating member when said support member is not moving said screed head assembly in said screeding direction and to automatically vibrate said vibrating member when said support member moves said screed head assembly in said screeding direction.

52. The screeding device of claim 51, wherein said control is operable to initially vibrate said vibrating member at an initial frequency when movement in said screeding direction is detected and to ramp up the vibration frequency of said vibrating member to an operational frequency as said screed head assembly is moved in said screeding direction, said operational frequency being greater than said initial frequency.

53. The screeding device of claim 51, wherein said control is operable to adjust the level of said vibrating member relative to said grade setting device, said control being operable to automatically initially lower said vibrating member toward and into engagement with the concrete surface after said grade setting device is lowered to a desired grade level.

54. The screeding device of claim 53, wherein said control is operable to automatically lower said vibrating member into engagement with the concrete surface in response to an activating event.

55. The screeding device of claim 53, wherein said control is operable to delay lowering said vibrating member relative to said grade setting device at least until said control receives an input indicative of at least a portion of said screed head assembly being moved to a position generally over a newly placed concrete area.